

What is claimed is:

1. An object extraction device comprising:

a first object extraction calculating device that finds the object extraction image by carrying out object extraction calculations for extraction an object by using a predetermined first calculation parameter on a plurality of photographed images having a parallax with respect to the same object; and

an incorrect outline extraction processing device that extracts an outline from an object extraction image found by said first object extraction calculating device and extracts as an incorrect outline a straight line segment having a length exceeding a predetermined threshold value within the extracted outline.

2. An object extraction device according to Claim 1 wherein said incorrect outline extraction processing device comprises:

an outline extraction device that extracts an outline from an object extraction image found by said object extraction calculating device;

an edge pixel calculating device that finds the edge part of the object from a predetermined photographed image from among said plurality of photographed images; and

an incorrect outline extraction device that extracts as an incorrect outline the straight line segment within the outline extracted by said outline extraction device that is the outline part that does not include the edge part found by said edge pixel calculating device and has a length exceeding a predetermined value.

3. An outline extraction device according to Claim 1 wherein said incorrect outline processing device comprises:

an outline extraction device that extracts an outline from an object extraction image found by said object extraction calculating device;

an edge pixel calculating device that finds the edge part of the object from a specified photographed image from among said plurality of photographed images; and

an incorrect outline extraction device that extracts as an incorrect outline the straight line segment that is the outline part within the outline extracted by said outline extraction device that does not include the edge part found by said edge pixel calculating device and has a length exceeding a predetermined value.

4. An object extraction device according to Claim 1 wherein said incorrect outline processing device comprises:

an outline extraction device that extracts an outline from an object extraction image found by said object extraction calculating device;

an edge pixel calculating device that finds the edge part of the object from a specified photographed image from among said plurality of photographed images; and

an incorrect outline extraction device that extracts as an incorrect outline the straight line segment that is the outline part within the outline extracted by said outline extraction device that does not include the edge part found by said edge pixel calculating device and has a length exceeding a predetermined first threshold value and the straight line segment that is the outline part that intersects said edge part found by the edge pixel calculating device and has a length exceeding a predetermined second threshold value.

5. An object extraction device according to Claim 1, wherein said straight line segment

is a straight line segment along the scanning direction of said predetermined photographed image.

6. An object extraction device according to Claim 1 comprising:

a recalculated region determining device that determines as the recalculated region the partial region that includes the incorrect outline extracted by said incorrect outline extraction processing device within the image region of said predetermined photographed image; and

a second object extraction calculating device that finds the re-extracted image that is the object extraction image of the recalculated region by carrying out object extraction calculation in order to eliminate an incorrect outline in said recalculated region by using a second calculation parameter that is different from a first calculation parameter on said plurality of photographed images.

7. An object extraction device according to Claim 6, wherein said recalculated region is determined as the rectangular region having a predetermined range that includes said incorrect outline.

8. An object extraction device according to Claim 6 wherein said recalculated region determining device re-determines as said recalculated region the region that encompasses all of the overlapping recalculated regions instead of a plurality of said overlapping recalculated regions.

9. An object extraction device according to Claim 8 wherein said recalculated region that has been re-determined is determined as the rectangular region having the smallest

area.

10. An object extraction device according to Claim 6, comprising an image reconstructing device that reconstructs the object extraction image based on the object extraction image found by said first object extraction calculating device and the re-extracted image found by said second object extraction calculating device.

11. An object extraction device according to Claim 10, wherein said image reconstructing device reconstructs the object extraction image by exchanging the image in the region corresponding to said recalculated region within the image region of the object extraction image found by said first object extraction calculating device and the  
5 re-extracted image found by said second object extraction calculating device.

12. An object extraction device according to Claim 11 wherein said second calculation parameter is a calculation parameter that is used to carry out an object extraction calculation that is more sophisticated than said first calculation parameter.

13. An object extraction device according to Claim 11, wherein said object extraction device is realized by a small-scale computer.

14. An object extraction device according to Claim 1, wherein said plurality of photographed images are photographed by a plurality of cameras that photograph the same object from different directions.

15. An object extraction device comprising an object extraction calculating device that

repeats the object extraction calculation for eliminating an incorrect outline from a predetermined partial region on the plurality of photographed images having parallax with respect to the same object using a predetermined calculation parameter that is  
 5 different from the initial calculation parameter, and finds the re-extracted image, which is the object extraction image of this partial region.

16. An object calculating device according to Claim 15 wherein said partial region is a region that includes the outline part determined to be an incorrect outline within the image region of the object extraction image found by carrying out the object extraction calculation for extraction the object using said initial calculation parameter.

17. An object extraction device according to Claim 15, comprising an image reconstructing device that reconstructs the object extraction image by exchanging the image of said partial region within the object extraction image found by the object extraction calculation using said initial calculation parameter and the re-extracted image.

18. An object extraction method comprising:

a first process that finds an object extraction image by carrying out an object extraction calculation for extraction the object using a predetermined first calculation parameter on the plurality of photographed images that have parallax with respect to the  
 5 same object;

a second process that extracts the outline from the object extraction image found by said first process;

a third process that extracts as an incorrect outline the straight line segment within the outline extracted by said second process that has a length exceeding a

10 predetermined threshold value;

a fourth process that determines as the recalculated region the partial region that includes the incorrect outline extracted by said third process within the image region of said predetermined photographed image;

15 a fifth process that finds the re-extracted image, which is the object extraction image in the recalculated region, by carrying out object extraction calculation for eliminating the incorrect outline in said recalculated region using a predetermined second calculation parameter that is different from said first calculation parameter on said plurality of photographed images; and

20 a sixth process that reconstructs the object extraction image based on the object extraction image found in said first process and the re-extracted image found in said fifth process.

19. An object extraction method according to Claim 18 wherein said third process finds the edge part of the object from the predetermined photographed image from among said plurality of photographed images and extracts as an incorrect outline either or both the straight line segment within the outline extracted by said second process that  
5 is the outline part not included in the found edge part and has a length exceeding a predetermined first threshold value and the straight line segment that is the outline part that intersects the found edge part and has a length exceeding a predetermined second threshold value.

20. A recording medium that stores an object extraction program that executes on a computer:

a first process that finds an object extraction image by carrying out object

5 parameter on a plurality of photographed images having parallax with respect to the  
same object;

10      a third process that extracts as an incorrect outline the straight line segment within the outline extracted by said second process that has a length exceeding a predetermined threshold value.

a fourth process that determines as the recalculated region the partial region that includes the incorrect outline extracted by said third process within an image region of  
5 said predetermined photographed image;

a fifth process that finds the re-extracted image, which is the object extraction image in the recalculated region, by carrying out object extraction calculation for eliminating the incorrect outline in said recalculated region using a predetermined second calculation parameter that is different from said first calculation parameter on the plurality of photographed images; and

22. A recording medium that stores an object extraction program according to Claim 20 wherein said object extraction program further executes on a computer in said third

process:

- a process that finds the edge part of the object from a predetermined
- 5 photographed image from among said plurality of photographed images; and
- a process that extracts as incorrect outlines either or both of a straight line
- segment that is the outline part within the outline extracted by said second process not
- included in the found edge part and that has a length exceeding a predetermined first
- threshold value and a straight line segment that is the outline part that intersects the
- 10 found edge part and has a length exceeding a predetermined second threshold value.

- 23. A computer medium that stores an object extraction program that further executes
- on a computer a process that finds the re-extracted image, which is the object extracted
- image of the partial region, by repeating the object extraction calculation for eliminating
- incorrect outlines within a predetermined partial region on the plurality of photographed
- 5 images having parallax with respect to the same object using a predetermined calculation
- parameter that is different from the initial calculation parameter.

- 24. A recording medium that stores an object extraction program according to Claim
- 23 wherein said object extraction program further executes on a computer a process that
- determines in a partial region the region that includes the determined outline part as an
- incorrect outline within an image region of the object extraction image found by
- 5 carrying out the object extraction calculation for extraction the object using said initial
- calculation parameter.

- 25. A recording medium that stores an object extraction program according to Claim
- 23 wherein said object extraction program further executes on a computer a process that



- reconstructs the object extraction image by exchanging the image of said partial region within the object extraction image found by the object extraction calculation using said
- 5 initial calculation parameter and the re-extracted image.